

AUG 02 2004

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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To:
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STATUS DELA

Date of Mailing
(day/month/year)

29 JUL 2004

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Applicant's or agent's file reference

5158.P008PCT

REPLY DUE

within 2 months/days from
the above date of mailing

International application No.

PCT/US02/36030

International filing date (day/month/year)

07 November 2002 (07.11.2002)

Priority date (day/month/year)

02 July 2001 (02.07.2001)

N/A

International Patent Classification (IPC) or both national classification and IPC

IPC(7): H04Q 7/20 7/00 H04B 1/00 1/10 and US Cl.: 340/7.21 455/450

Applicant

BROADSTORM TELECOMMUNICATION, INC.

- This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
- This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

- The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

- The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 02 November 2003 (02.11.2003)

Name and mailing address of the IPEA/US

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Authorized officer

David Nguyen

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I. Basis of the opinion

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
 pages 1-25, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____
- ☒ the claims:
 pages 26-31, as originally filed
 pages NONE, as amended (together with any statement) under Article 19
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____
- ☒ the drawings:
 pages 1-14, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages NONE, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
 These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages None
- ☒ the claims, Nos. None
- ☒ the drawings, sheets/fig None

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

WRITTEN OPINION

International application No.
PCT/US02/36030

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>1-29</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>None</u>	YES
	Claims <u>1-29</u>	NO
Industrial Applicability (IA)	Claims <u>1-29</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Please See Continuation Sheet

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

V. 2. Citations and Explanations:

Claims 1,6,11,17 and 22-29 lack an inventive step under PCT Article 33(3) as being obvious over MITSURU et al. (JP 06-029922) in view of Harel et al (US Patent Number 6366195).

Regarding claim 1, Mitsuru et al disclose a process for allocating carriers in a multicarrier system, the process comprising: determining a location of a subscriber with respect to a base station; selecting carriers from a band of multi-carriers to allocate to the subscriber according to the location of the subscriber with respect to the base station; allocating selected carriers to the subscriber (see abstract). Mitsuru are silent to disclose indicating to the subscriber whether or not to adjust transmit power to above its normal transmit power range. However, Harel et al discloses indicating to the subscriber whether or not to adjust transmit power to above its normal transmit power range (see col. 2, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Harel et al to Mitsuru in order to improve signal quality.

Regarding claim 6, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel et al comprising all of the limitations as claimed. Harel et al also discloses sending a command to the subscriber to use either a normal or extended power control range based on carrier allocation (see col. 2, lines 23-27).

Regarding claim 11, Mitsuru et al disclose an apparatus comprising a carrier allocator to determine spectral priority based on information gathered from access requests sent by subscriber units (see abstract). Mitsuru et al do not disclose a power control unit coupled to the carrier allocator to indicate a power control range for each of the subscriber units. However, Harel et al discloses a power control unit coupled to the carrier allocator to indicate a power control range for each of the subscriber units (see col. 2, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Harel to Mitsuru in order to improve signal quality.

Regarding claim 17, Harel et al also discloses wherein the power control units commands at least one of the subscriber units to extend the power control range of the subscriber (see col. 2, lines 23-27).

Regarding claim 22, Mitsuru et al disclose a method for communicating between a base station and subscribers comprising selectively allocating one or more carriers of a band to a subscribers in a multi-carrier system based on results of comparing the adjacent channel, wherein one or more subscribers closer to a base station are allocated carriers closer to the band edges of the operating channel and one or more subscribers further from the base station are allocated carriers near or at the center of the operating channel (see abstract). Mitsuru et al are silent to disclose comparing interference to adjacent channel leakage power with output power of a subscriber. However, Harel et al discloses comparing interference to adjacent channel leakage power with output power of a subscriber (see col. 2, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Harel et al to Mitsuru in order to improve signal quality.

Regarding claims 23-29, the method of MITSURU et al in view of Harel et al also disclose wherein the adjacent channel leakage power the FCC Adjacent Channel Leakage Power (ACPR); the carrier being allocated comprise orthogonal frequency-division multiple access carriers; each carrier being allocated comprise a cluster of orthogonal frequency-division multiple access carriers; at

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

least one of the one or more carriers comprises a spreading code and the multi-carrier system comprises a code-division multiple-access system; at least one or more carriers comprises an antenna mean in a space-division multiple access system; wherein the multicarrier system comprises a wireless system; the multicarrier system comprises a cable system (see col. 2, lines 1-67 of Harel).

Claims 2,3,12, 14-16 and 18-21 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Dent (US Patent Number 6061568).

Regarding claims 2 and 3, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel comprising all of the limitations as claimed. They are silent to disclose wherein the closer the subscriber is to the base station the farther away the selected carriers are from the center of the band; and wherein selecting carriers from the band of multi-carriers comprising selecting carriers closer to or at the center of the band when the subscriber is far away from the base station; and selecting carriers farther away from the center of the band when the subscriber is close to the base station. However, Dent discloses communication signals are allocated such that high power signals are positioned near the center of a given frequency band, while low power signals are positioned near frequency band edges (see col. 3, lines 1-5). It is apparent that wherein the closer the subscriber is to the base station the farther away the selected carriers are from the center of the band; and when the subscriber is far away from the base station, the mobile needs to be allocated high power signals; when the subscriber is close to the base station, the mobile only needs to be allocated low power signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Dent to Harel et al and Mitsuru in order to improve signal quality.

Regarding claim 12, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel comprising all of the limitations as claimed. They are silent to disclose wherein the carrier allocator allocates carriers at edges of a band to the nearest subscribers. However, Dent discloses communication signals are allocated such that high power signals are positioned near the center of a given frequency band, while low power signals are positioned near frequency band edges (see col. 3, lines 1-5). It is apparent that wherein the closer the subscriber is to the base station the farther away the selected carriers are from the center of the band; and when the subscriber is far away from the base station, the mobile needs to be allocated high power signals; when the subscriber is close to the base station, the mobile only needs to be allocated low power signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Dent to Harel et al and Mitsuru in order to improve signal quality.

Regarding claim 14, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel comprising all of the limitations as claimed. They are silent to disclose wherein the carrier allocator monitors allocation of the carriers and dynamically reallocates carriers to subscribers. However, Dent discloses wherein the carrier allocator monitors allocation of the carriers and dynamically reallocates carriers to subscribers (see col. 3, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Dent to Harel et al and Mitsuru in order to improve signal quality.

Regarding claim 15, Dent also discloses communication signals are allocated such that high power signals are positioned near the center of a given frequency band, while low power signals are positioned near frequency band edges (see col. 3, lines 1-5). It is apparent that wherein the closer the subscriber is to the base station the farther away the selected carriers are from the center of the band; and when the subscriber is far away from the base station, the mobile needs to be allocated high power signals; when the subscriber is close to the base station, the mobile only needs to be allocated low power signals.

Regarding claim 16, Dent also discloses communication signals are allocated such that high power signals are positioned near the center of a given frequency band, while low power signals are positioned near frequency band edges (see col. 3, lines 1-5). It is apparent that Dent discloses wherein the carrier allocator reallocates carriers farther from the center of the band when a subscriber moves closer to the base station.

Regarding claims 18-21, Mitsuru et al disclose a method comprising a subscriber sending an indication to transmit; and the subscriber receiving an indication of carriers selected based on distance of the subscriber from the base station in relation to other subscribers, the carriers for use in communicating with a base station (see abstract). Mitsuru are silent to disclose driving up or down subscriber transmit power depending on a location of the subscriber in relation to a base station. However, Dent discloses communication signals are allocated such that high power signals are positioned near the center of a given frequency band, while low power signals are positioned near frequency band edges (see col. 3, lines 1-5). It is apparent that Dent discloses driving up or down subscriber transmit power depending on a location of the subscriber in relation to a base station; receiving a power control command from base station and wherein the subscriber drives up or down the subscriber transmit power base on; receiving a command to use either a normal or extended power control range based on the carriers allocated; and transmitting at a higher power while simultaneously meeting FCC ACPR emission requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Dent to Harel et al and Mitsuru in order to improve signal quality.

Claims 4-5 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Lindroth et al. (US Patent Number 5887245) and still in view of Kotzin et al (US Patent Number 5734967).

Regarding claim 4, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel comprising all of the limitations as claimed. They are silent to disclose receiving a request from a subscriber; calculating a time delay and a path loss associated with the subscriber; and determining transmit-power requirements for the subscriber based on the time delay and the path loss. However, receiving a request from a subscriber is well know in the art. And Kotzin et al disclose relationship

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

between transmit power, path loss and time delay (see col. 5, lines 54-67); and Lindroth et al discloses determining transmit power based on path loss (see col. 4, lines 10-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Lindroth and Kotzin to Harel et al and Mitsuru in order to improve signal quality.

Regarding claim 5, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel, Lindroth and Kotzin comprising all of the limitations as claimed in claim 4. They are silent to disclose determining transmit power requirements is further based on signal-to-noise-plus-interference ratio. However, Jalali et al disclose determining transmit power requirements is further based on signal-to-noise-plus-interference ratio is well known in the art (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Jalali to Lindroth, Kotzin and Harel et al and Mitsuru in order to determine signal quality.

Claim 7 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Hakkinen et al (US Patent Number 6226320).

Regarding claim 7, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel comprising all of the limitations as claimed. They are silent to disclose adjusting a power control setting for the subscriber at the base station. However, Hakkinen et al disclose adjusting a power control setting for the subscriber at the base station (see col. 1, lines 42-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Hakkinen et al to Harel et al and Mitsuru in order to improve signal quality.

Claims 8-10 and 13 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Hakkinen et al (US Patent Number 6226320) and still in view of Take (US Patent Number 6477158).

Regarding claim 8, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel and Hakkinen comprising all of the limitations as claimed in claim 7. They are silent to disclose assigning a spectral priority code to the subscriber based on whether the subscriber is near to or far from the base station, and wherein carrier allocation occurs based on the spectral priority code. However, Take discloses assigning a spectral priority code to the subscriber based on whether the subscriber is near to or far from the base station, and wherein carrier allocation occurs based on the spectral priority code (see col. 7, lines 30-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Take to Hakkinen et al, Harel et al and Mitsuru so that high power signals are assigned to subscribers far away from the base station.

Regarding claim 9, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel and Hakkinen and Take comprising all of the limitations as claimed in claim 9. They are silent to disclose allocating carriers at the center of the band to the subscriber when the subscriber is assigned a first predetermined spectral priority code. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide allocating carriers at the center of the band to the subscriber when the subscriber is assigned a first predetermined spectral priority code so that reserve high power signals are reserved for subscribers far away from the base station in order to improve the quality of signal.

Regarding claim 10, Mitsuru et al disclose a process for allocating carriers in a multicarrier system modified by Harel and Hakkinen and Take comprising all of the limitations as claimed in claim 9. They are silent to disclose allocating carriers adjacent to carriers at the center of the band to the subscriber when the subscriber is assigned a second predetermined spectral priority code that is of a lower priority than the first predetermined spectral priority code. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide allocating carriers adjacent to carriers at the center of the band to the subscriber when the subscriber is assigned a second predetermined spectral priority code that is of a lower priority than the first predetermined spectral priority code so that reserve high power signals are reserved for subscribers far away from the base station in order to improve the quality of signal.

Regarding claim 13, the apparatus of MITSURU et al in view of Harel et al does not disclose wherein the carrier allocator classifies subscribers into groups and allocates carriers to each of the subscribers based on the priority group in which each of the subscribers resides. However, Hakkinen et al disclose wherein the carrier allocator classifies subscribers into groups and allocates carriers to each of the subscribers based on the priority group in which each of the subscribers resides (see col. 7, lines 30-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Take to Hakkinen et al, Harel et al and Mitsuru so that high power signals are assigned to subscribers far away from the base station.

----- NEW CITATIONS -----